BASIC ORIENTATION FOR NEW EMCOMM VOLUNTEERS

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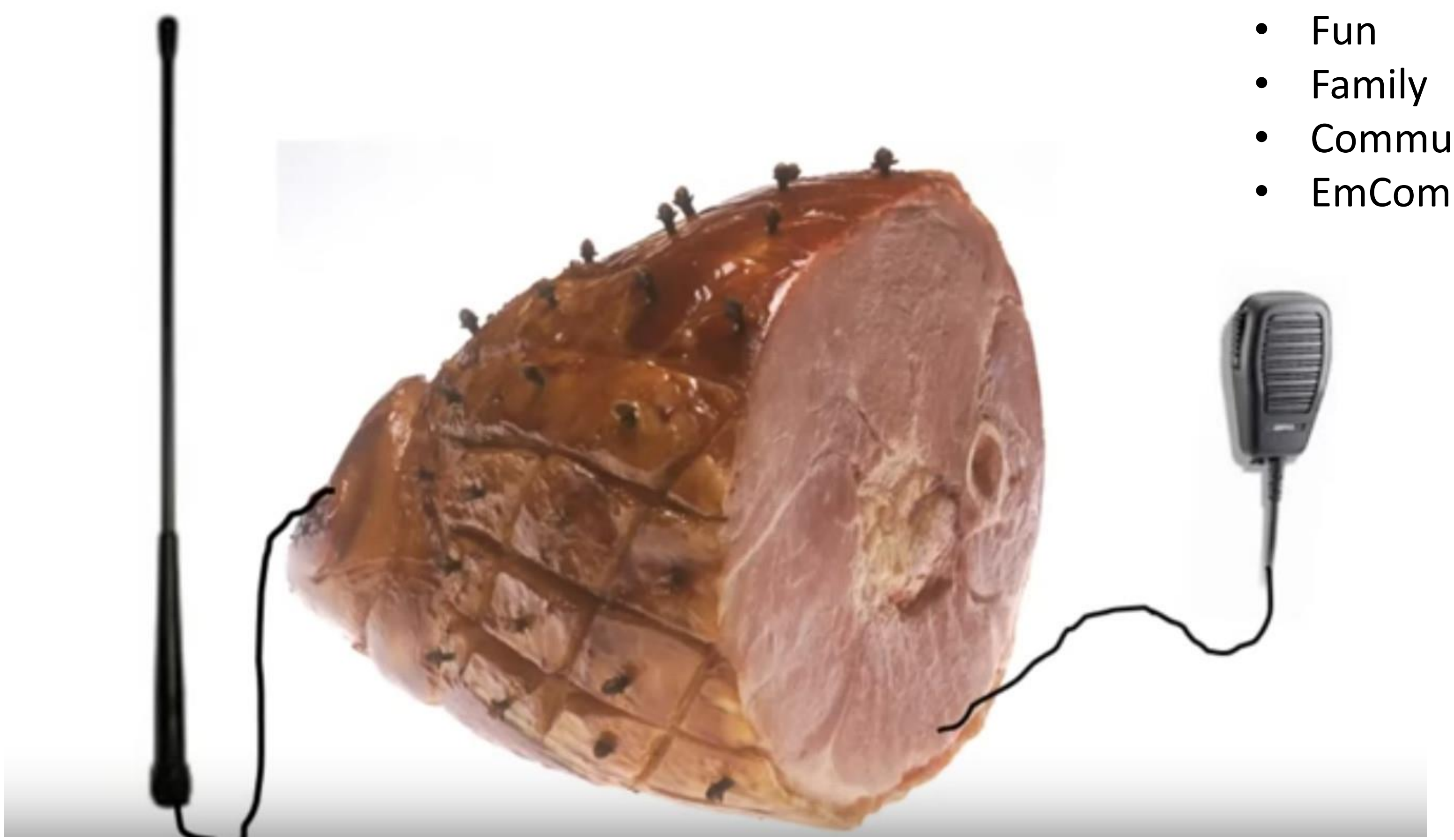
So you want a Ham radio - for what?



- Fun
- Family
- Community
- EmComm

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BASIC QUESTIONS

What radio should I buy?
What training do I need?
Do I need a go-kit? If so, what should be in it?
Who am I going to talk to?
Where will I be?

And a bunch more…

WHO ARE YOU SUPPORTING?

Some Supported Organizations / Served Agencies

- Government Entities
  - Emergency Management (OEM/DEM/EMD/etc.)
- Non-Government Entities
  - Red Cross
  - Corporate Sponsored
- Civic and Religious
  - Community Groups
  - Church Groups
- Family and neighborhood

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WHO ARE YOU TEAMING WITH?

- ARES – Amateur Radio Emergency Services (www.ARRL.org/ares)
  - National ARRL Program
  - Local Emergency Coordinator and Team
- RACES – Radio Amateur Civil Emergency Service (www.USRACES.org)
  - Federal Program under FEMA & FCC
  - Certified by "civil defense agency"
  - Activated by local, county & state jurisdictions
- ACS – Auxiliary Communications Service
  - Supports a specific local agency
  - Often also a RACES organization
- Other – CERT, Club, Company, …

HOW DO THEY COMMUNICATE?

Amateur Bands / Frequencies

- HF, 10M, 6M, 2M, 1.25m, 70cm, …

Modes

- Voice - Analog FM/AM/SSB
  - - Digital DMR, D-Star, Fusion, P25
- Non-Voice
  - - Winlink / VARA
  - - fldigi
  - - APRS
  - - CW

HOW DO THEY COMMUNICATE?

Not just Amateur, you might also use:

Personal Radio Services - GMRS / MURS / CB (Part 95)
Commercial/Business/Industrial (Part 90)
Public Safety VHF/UHF/700/800/trunked (Part 90)
Marine (Part 80)

(Note: Each “part” has its own rules and equipment certification requirements.)

And...
POTS/PBX/Fax (yeah, really)

BASIC QUESTIONS

What radio should I buy?
Put it in context of what we just reviewed. What do you need initially to start working with whatever group, supporting whatever agency or purpose they support?

Also, what are the most common radios already in use within that group? If most members already use brand X, model Y, that is a good argument to get brand X, model Y (help operating, spare battery or speaker-mic, etc.)

BASIC QUESTIONS

What radio should I buy?

Handheld versus Mobile versus “Base” Pros & Cons

- Handheld Pros
  - small, easily carried, self contained, low power consumption
- Handheld Cons
  - Poor antenna, limited battery capacity, shorter range

BASIC QUESTIONS

What radio should I buy?

Handheld versus Mobile versus “Base” Pros & Cons

- Mobile Pros
  - Higher TX power, external antenna, uses vehicle or mains power (w/PS)
- Mobile Cons
  - Higher power consumption, requires external antenna and power source, less portable

BASIC QUESTIONS

What radio should I buy?

Handheld versus Mobile versus “Base” Pros & Cons

- Base Pros
  - Perhaps much higher TX power, external antenna designed to purpose, very sophisticated capabilities.
- Base Cons
  - Less movable, very expensive

BASIC QUESTIONS

What radio should I buy?

DC Power considerations:

Handheld –

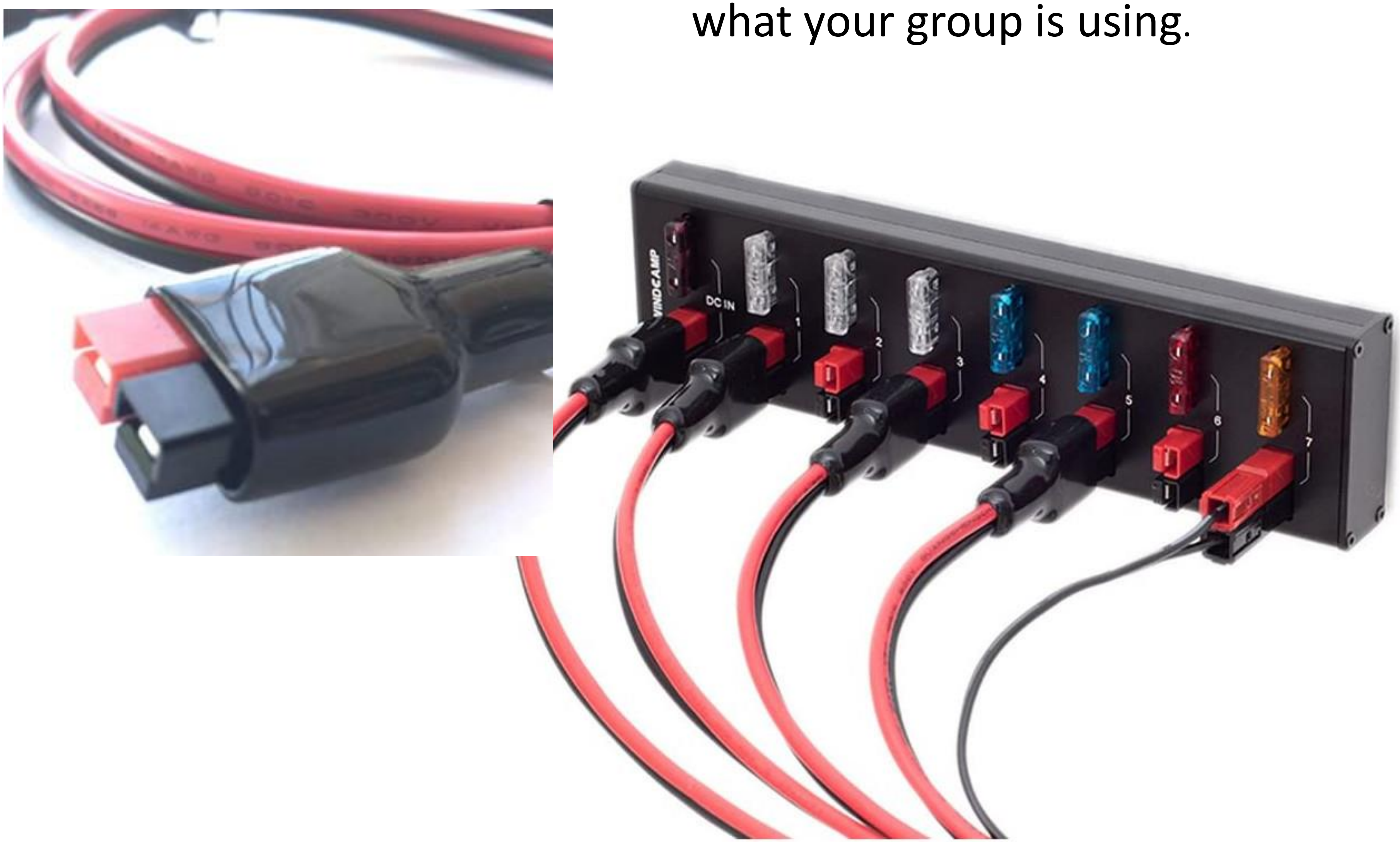
0.02 amp idle, 0.20 amp RX, 1.5 amp TX high

Mobile –

0.02 amp OFF, 0.58 amp idle,, 0.7 amp RX, 7.5 amp TX high

Conclusion: Mobile uses a LOT more power!

Make sure your power connectors are compatible with what your group is using.



IT’S ALL ABOUT THE ANTENNA

IT’S ALL ABOUT THE ANTENNA

Use best antenna possible
  - Handheld – hold it high, not on belt or chest pack
  - Mobile, use outside antenna even/especially with HT
  - Base, height is might, the higher your antenna the better.
  - Yaggi/Directional – focuses gain, reduces side interference

Keep antennas separated – de-sense

Outside antenna would be better, but this is much better than HT laying on seat.

Convenient, but poor antenna orientation and partial body block.

BASIC QUESTIONS

What training do I need?

Whatever your group/organization requires
Whatever your served agency requires

1. Most likely basic ICS classes – ICS 100, 200, 700 are very common requirements.
2. Teamwork – know your team.
3. How to do effective voice communications, clear, concise, brief.
4. How to operate safely. Safety should always be #1 concern.
5. What personal and radio equipment you need – Go kit requirements.
6. What frequencies are used – ICS-217 and ICS-205
7. What modes of operation – digital modes – fldigi and/or winlink

Sources:

ARRL Online continuing education courses
FEMA OEC AUXCOM Class (very hard to get)
Oregon ACES Class, designed to satisfy local (OR,WA) requirements
Your specific group.

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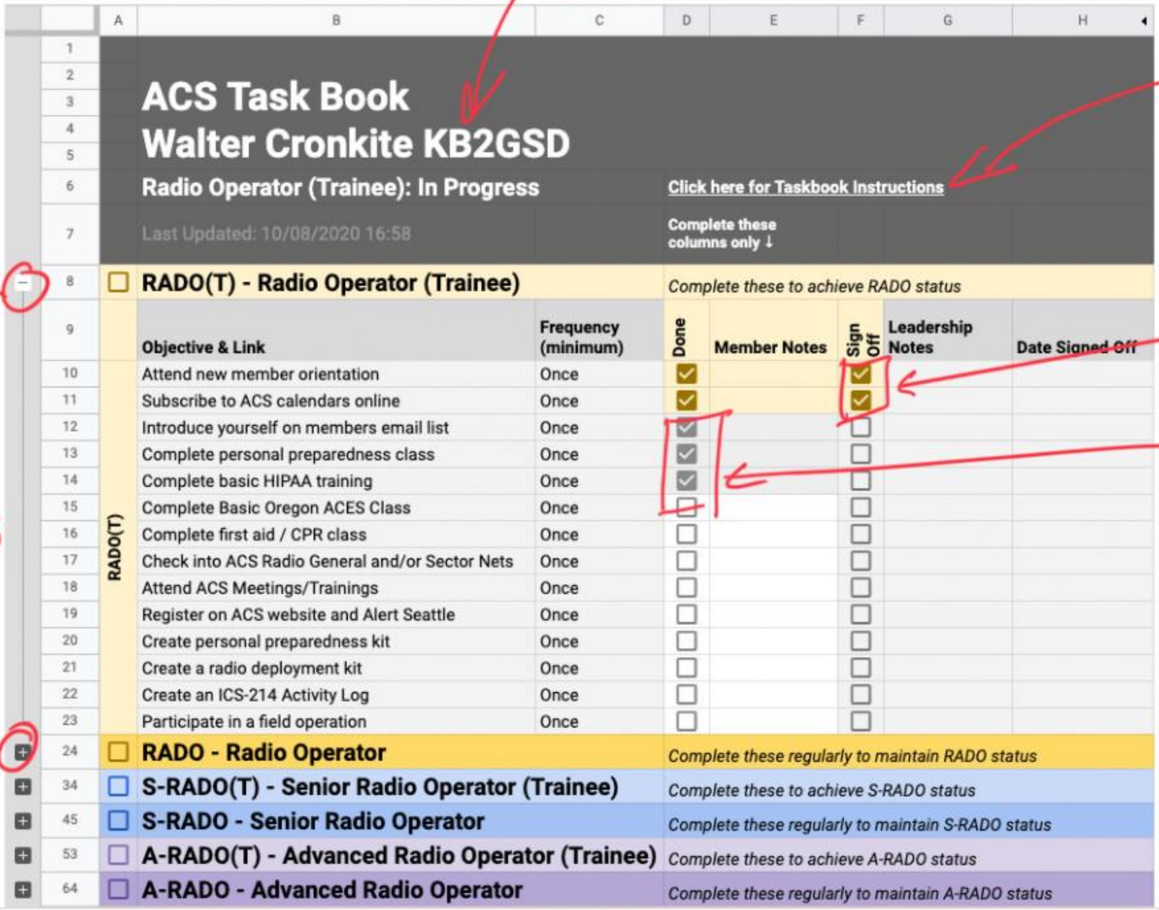
BASIC QUESTIONS

What training do I need?

YOUR NAME & CALL SIGN



ACS Task Book
Walter Cronkite KB2GSD
Radio Operator (Trainee): In Progress

Last Updated: 10/08/2020 16:58

Click here for Taskbook Instructions

Complete these columns only ↓

8	☐ **RADO(T) - Radio Operator (Trainee)**		*Complete these to achieve RADO status*				
9	**Objective & Link**	**Frequency (minimum)**	**Done**	**Member Notes**	**Sign Off**	**Leadership Notes**	**Date Signed Off**
10	Attend new member orientation	Once	☑		☑		
11	Subscribe to ACS calendars online	Once	☑		☑		
12	Introduce yourself on members email list	Once	☑		☐		
13	Complete personal preparedness class	Once	☑		☐		
14	Complete basic HIPAA training	Once	☑		☐		
15	Complete Basic Oregon ACES Class	Once	☐		☐		
16	Complete first aid / CPR class	Once	☐		☐		
17	Check into ACS Radio General and/or Sector Nets	Once	☐		☐		
18	Attend ACS Meetings/Trainings	Once	☐		☐		
19	Register on ACS website and Alert Seattle	Once	☐		☐		
20	Create personal preparedness kit	Once	☐		☐		
21	Create a radio deployment kit	Once	☐		☐		
22	Create an ICS-214 Activity Log	Once	☐		☐		
23	Participate in a field operation	Once	☐		☐		
24	☐ **RADO - Radio Operator**		*Complete these regularly to maintain RADO status*				
34	☐ **S-RADO(T) - Senior Radio Operator (Trainee)**		*Complete these to achieve S-RADO status*				
45	☐ **S-RADO - Senior Radio Operator**		*Complete these regularly to maintain S-RADO status*				
53	☐ **A-RADO(T) - Advanced Radio Operator (Trainee)**		*Complete these to achieve A-RADO status*				
64	☐ **A-RADO - Advanced Radio Operator**		*Complete these regularly to maintain A-RADO status*				

RADO(T)

Link to Info

Sign off by ACS

Check off for members

EXPAND SECTIONS

BASIC QUESTIONS

Do I need a go-kit?
What should be in it?

Do you need one? Yes

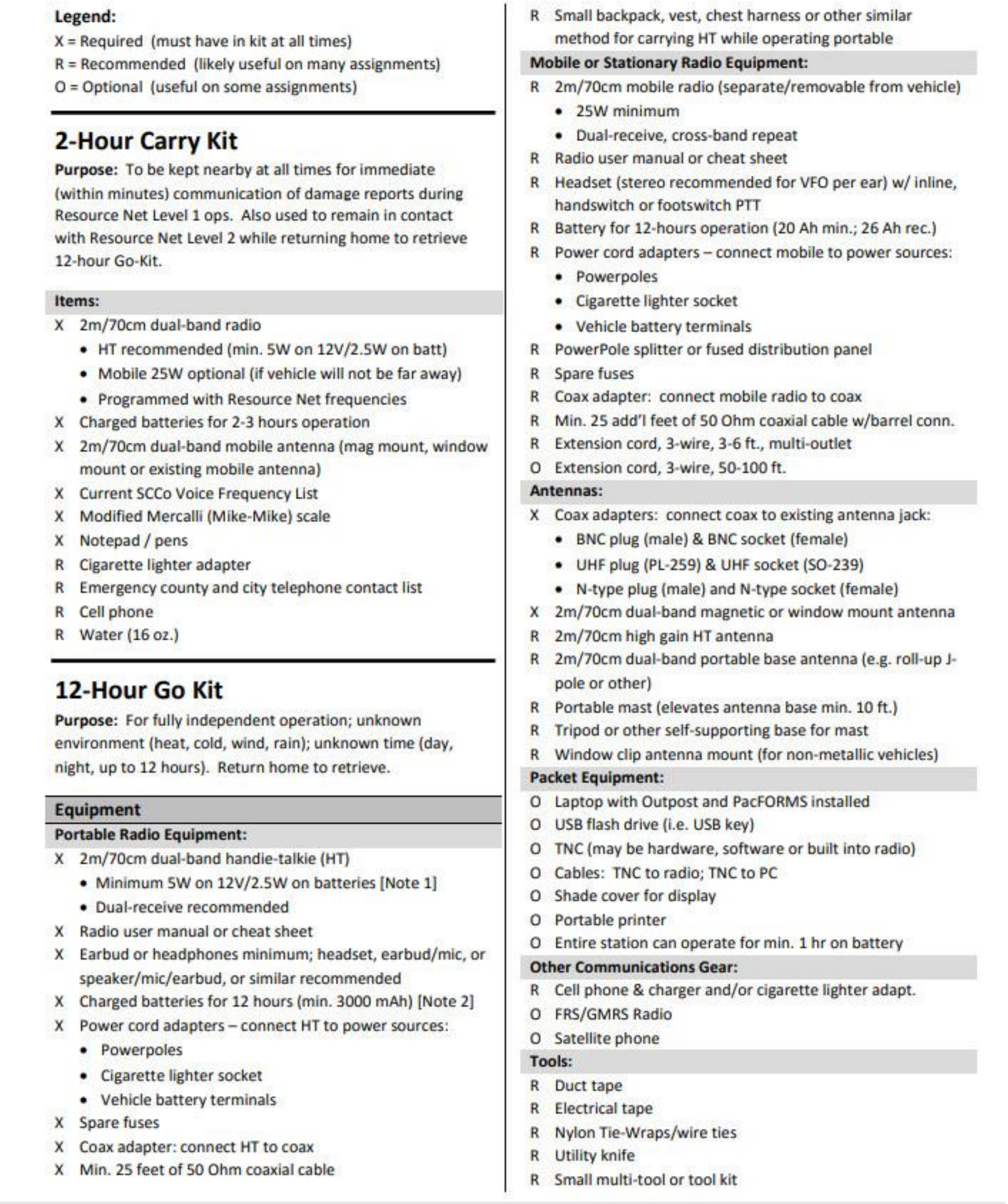
What should be in it? What YOU need.

Radio go-kit should allow you to do sustained operations for however long you are deployed, on whatever frequencies and modes are specified.

Personal go-kit should support you for that same duration. Food, water, clothing, medicine, shelter.

Many online suggestions/examples. Typically people will prepare a 24 hour kit, and a 72 hour kit.

GO KIT LIST EXAMPLE



Legend:
X = Required (must have in kit at all times)
R = Recommended (likely useful on many assignments)
O = Optional (useful on some assignments)

2-Hour Carry Kit

Purpose: To be kept nearby at all times for immediate (within minutes) communication of damage reports during Resource Net Level 1 ops. Also used to remain in contact with Resource Net Level 2 while returning home to retrieve 12-hour Go-Kit.

Items:

X 2m/70cm dual-band radio
- HT recommended (min. 5W on 12V/2.5W on batt)
- Mobile 25W optional (if vehicle will not be far away)
- Programmed with Resource Net frequencies

X Charged batteries for 2-3 hours operation
X 2m/70cm dual-band mobile antenna (mag mount, window mount or existing mobile antenna)
X Current SCCo Voice Frequency List
X Modified Mercalli (Mike-Mike) scale
X Notepad / pens
R Cigarette lighter adapter
R Emergency county and city telephone contact list
R Cell phone
R Water (16 oz.)

12-Hour Go Kit

Purpose: For fully independent operation; unknown environment (heat, cold, wind, rain); unknown time (day, night, up to 12 hours). Return home to retrieve.

Equipment

Portable Radio Equipment:

X 2m/70cm dual-band handie-talkie (HT)
- Minimum 5W on 12V/2.5W on batteries [Note 1]
- Dual-receive recommended

X Radio user manual or cheat sheet
X Earbud or headphones minimum; headset, earbud/mic, or speaker/mic/earbud, or similar recommended
X Charged batteries for 12 hours (min. 3000 mAh) [Note 2]
X Power cord adapters – connect HT to power sources:
- Powerpoles
- Cigarette lighter socket
- Vehicle battery terminals

X Spare fuses
X Coax adapter: connect HT to coax
X Min. 25 feet of 50 Ohm coaxial cable
R Small backpack, vest, chest harness or other similar method for carrying HT while operating portable

Mobile or Stationary Radio Equipment:

R 2m/70cm mobile radio (separate/removable from vehicle)
- 25W minimum
- Dual-receive, cross-band repeat

R Radio user manual or cheat sheet
R Headset (stereo recommended for VFO per ear) w/ inline, handswitch or footswitch PTT
R Battery for 12-hours operation (20 Ah min.; 26 Ah rec.)
R Power cord adapters – connect mobile to power sources:
- Powerpoles
- Cigarette lighter socket
- Vehicle battery terminals

R PowerPole splitter or fused distribution panel
R Spare fuses
R Coax adapter: connect mobile radio to coax
R Min. 25 add'l feet of 50 Ohm coaxial cable w/barrel conn.
R Extension cord, 3-wire, 3-6 ft., multi-outlet
O Extension cord, 3-wire, 50-100 ft.

Antennas:

X Coax adapters: connect coax to existing antenna jack:
- BNC plug (male) & BNC socket (female)
- UHF plug (PL-259) & UHF socket (SO-239)
- N-type plug (male) and N-type socket (female)

X 2m/70cm dual-band magnetic or window mount antenna
R 2m/70cm high gain HT antenna
R 2m/70cm dual-band portable base antenna (e.g. roll-up J-pole or other)
R Portable mast (elevates antenna base min. 10 ft.)
R Tripod or other self-supporting base for mast
R Window clip antenna mount (for non-metallic vehicles)

Packet Equipment:

O Laptop with Outpost and PacFORMS installed
O USB flash drive (i.e. USB key)
O TNC (may be hardware, software or built into radio)
O Cables: TNC to radio; TNC to PC
O Shade cover for display
O Portable printer
O Entire station can operate for min. 1 hr on battery

Other Communications Gear:

R Cell phone & charger and/or cigarette lighter adapt.
O FRS/GMRS Radio
O Satellite phone

Tools:

R Duct tape
R Electrical tape
R Nylon Tie-Wraps/wire ties
R Utility knife
R Small multi-tool or tool kit

BASIC QUESTIONS

What about your family?

Family / home preparation is essential. You can’t be an effective resource when deployed on a mission unless you know your family and home are safe and secure. Personal/family preparedness is essential. Make sure you have sufficient food, water, heat, and whatever other resources you need on hand. Rotate supplies regularly. This is an ongoing responsibility, and it just makes good sense. Don’t be that person rushing to the store only to find the shelves empty.

There is a difference between being prepared for Armageddon and being prepared for what you reasonably expect to happen in whatever type of disaster/emergency scenario you might realistically face.

WA has the Map Your Neighborhood program to support individual, family, and neighborhood preparedness.

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NOT SO BASIC QUESTION

Served Agency Relationship. This isn’t a question most new volunteers ask about, but it is a critically important one if you hope to establish and maintain a relationship where your volunteer group is valued and called upon. If you will be working in a facility, such as an EOC, with regular responders, you must be as professional as they are, and should be indistinguishable from them – just part of the team performing your part of the operation.

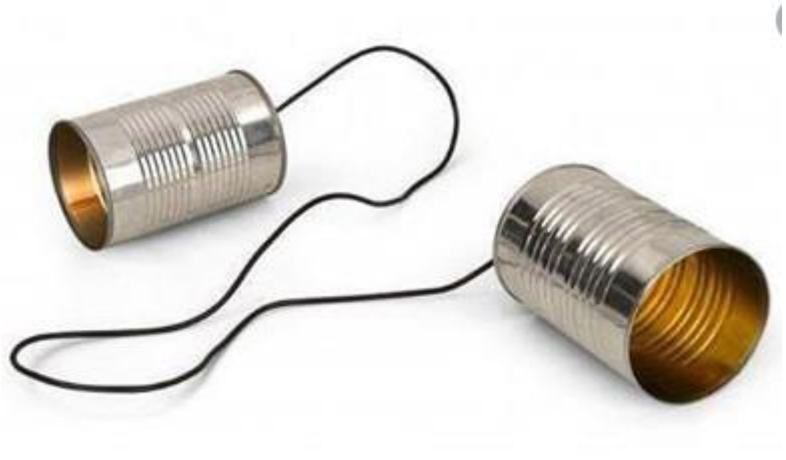
Apparel, behavior, training & knowledge, compliance with their policies and practices. It can happen, it does happen, it isn’t easy.

SERVED AGENCY RELATIONSHIP

FOR THE REALLY, REALLY, NEW PERSON

For some new operators, it is hard to take that huge first step of actually reaching out to try and talk to someone on the radio. It can be a daunting challenge, but there are just so many ham operators out there anxious to be your first contact – it's a thrill for us to greet you, welcome you, and help you along.

For clubs, groups, and organizations, the very best thing you can do is have a strong welcoming and mentoring program. This is often also one of the most difficult things to do. But done properly you will grow and retain your trained and experienced operators.



SAFETY AND SECURITY

TRAINING or DISASTER
New or Rarely Practiced Activities
New or Rarely Visited Locations
May be Hazardous Locations
Likely to be Unsecured Locations

DISASTER
Likely to be Hazardous Locations
Panicked People and General Disorder

Can You Deploy? – personal safety, family, property
Keep Yourself Safe – don't become a casualty and a liability
Think About What You Do – Is it Safe?
Ask For Help – If you have any doubt, ask for advice or assistance
Pay Attention to What Others Do – Is it Safe? Speak Up
Heed Warnings from Others – Stop, Listen, Adjust

JUST A FEW THINGS TO CONSIDER:

- Cold/Wind/Rain – Hypothermia
- Sun/Heat – Heat Exhaustion
- Dehydration
- Cuts, Scrapes, Bumps, etc
- Head and Eye Injuries
- Guy Wires and Stakes – Tripping
- Free Standing Antenna Masts – Injury from falling mast

Just take it at a reasonable pace, and don’t go overboard.

Before you know it, you’ll be an old hand at things.

BASIC ORIENTATION FOR NEW EMCOMM VOLUNTEERS

Please join us for a Question / Discussion Forum following this class. You are also welcome to contact me directly with questions or comments. Thank you for your time.

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